WE CLAIM:

1. A liposomal antitumor composition, comprising a platinum complex having the formula

R_1-Pt-X_2

entrapped in a liposome, where R_1 is diaminocycloalkyl and X is halogen.

2. The composition of claim 1, where R_1 has from about 3 to about 6 carbon atoms.

3. The composition of claim 1, where R_1 is 1,2-diaminocyclohexane.

4. The composition of claim 1, where X is chlorine.

5. The composition of claim 1, where the liposome comprises an acidic phospholipid.

6. The composition of claim 1, where the liposome comprises dimyristoyl phosphatidyl glycerol.

7. The composition of claim 1, where the platinum complex is intercalated between bilayers of the liposome.

8. A liposomal antitumor composition, comprising a platinum complex having the formula

DACH-Pt-Cl_2

intercalated between bilayers of a liposome, where DACH is diaminocyclohexane; and

where the liposome further comprises dimyristoyl phosphatidyl glycerol.

9. A method of inhibiting tumor growth, comprising:

administering to a mammal a composition that comprises a amount effective to inhibit tumor growth of a platinum complex having the formula

R_1-Pt-X_2

entrapped in a liposome, where R_1 is diaminocycloalkyl and X is halogen.

10. The method of claim 9, where R_1 has from about 3 to about 6 carbon atoms.

11. The method of claim 9, where R_1 is 1,2-diaminocyclohexane.

12. The method of claim 9, where X is chlorine.

13. The method of claim 9, where the liposome comprises an acidic phospholipid.

14. The method of claim 9, where the liposome comprises dimyristoyl phosphatidyl glycerol.

15. The method of claim 9, where the complex is intercalated between bilayers of the liposome.

16. A method of inhibiting tumor growth, comprising:

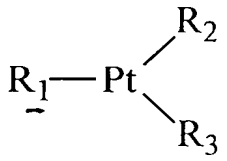
administering to a mammal a composition that comprises a amount effective to inhibit tumor growth of a platinum complex having the formula

DACH-Pt-Cl_2

intercalated between bilayers of a liposome, where DACH is diaminocyclohexane, and where the liposome further comprises dimyristoyl phosphatidyl glycerol.

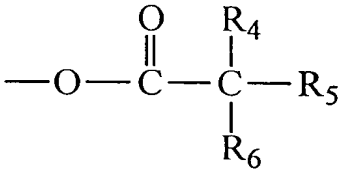
17. A method of preparing an antitumor composition, comprising:

adjusting the pH of a composition that comprises a platinum complex having the formula



(I)

entrapped in a liposome, where R_1 is diaminocycloalkyl, and R_2 and R_3 each have the formula



where R_4, R_5, and R_6 are each independently hydrocarbon moieties having from 1 to about 10 carbon atoms,

whereby the complex (I) is converted into a complex having the formula

R_1-Pt-X_2 (II)

where R_1 is diaminocycloalkyl and X is halogen.

18. The method of claim 17, where the pH is adjusted to between about 2 and about 6.5.

19. The method of claim 17, where R_4, R_5, and R_6 are each independently alkyl having from 1 to about 6 carbon atoms.

20. The method of claim 17, where R_4, R_5, and R_6 are each independently alkyl having from 1 to about 3 carbon atoms.

21. The method of claim 17, where the complex (I) is converted to the complex (II) within the liposome.

22. The method of claim 17, where the pH is adjusted by contacting the liposome with an acidic solution.

23. The method of claim 17, where the pH is adjusted by including an acidic phospholipid in the liposome.

24. The method of claim 17, where the liposome comprises dimyristoyl phosphatidyl glycerol.

25. The method of claim 17, where R_2 and R_3 are neodecanoato.

26. The method of claim 17, where R_1 has from about 3 to about 6 carbon atoms.

27. The method of claim 17, where R_1 is 1,2-diaminocyclohexane.

28. The method of claim 17, where X is chlorine.

29. The method of claim 17, where the complex (I) is intercalated between bilayers of the liposome.

30. The method of claim 17, where the complex (II) is intercalated between bilayers of the liposome.

31. The method of claim 17, where the complex (I) is cis-bis-neodecanoato-trans-R,R-1,2-diaminocyclohexane platinum(II).

32. The method of claim 17, further comprising the step of subsequently readjusting the pH after a predetermined time to about 7.

33. A method of preparing an antitumor composition, comprising:

adjusting the pH of a composition that comprises cis-bis-neodecanoato-trans-R,R-1,2-diaminocyclohexane platinum (II) entrapped in a liposome, to a level less than 7, whereby the platinum complex is converted into dichlorodiamine platinum (II), and

after a predetermined time, adjusting the pH to at least about 7.

34. A method of delivering a biologically active chemical moiety internally to a mammal, comprising:

providing an aqueous formulation of a prodrug of a biologically active moiety, the prodrug being entrapped in a liposome, the prodrug further being capable of forming the biologically active moiety upon exposure to a solution having an acidic pH;

reducing the pH to an acidic level, thereby converting the prodrug to the biologically active compound; and

administering the aqueous formulation to a mammal.

35. The method of claim 34, where the biologically active moiety is an antitumor agent.

36. The method of claim 34, where the pH is reduced by including an acidic phospholipid in the liposome.